



## PATENT ABSTRACTS OF JAPAN

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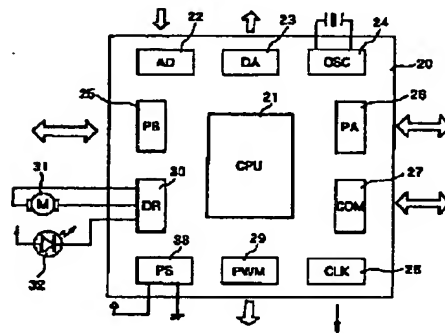
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(57) Abstract:

**PROBLEM TO BE SOLVED:** To avoid causing nonconformities due to noise, etc., by forming an allotting pattern which divides signals in groups of signals susceptible for or easy to emit noises and signals for transferring heavy currents.

**SOLUTION:** Analog blocks including AD converters 22, DA converters 23, oscillator circuits OSC 24, etc., are required to be highly accurate and have high impedances which are extremely susceptible to external noises. Communication port COM 27, high-speed clock terminals CLK 28 and PWM 29 are for signal groups having comparatively high frequencies among digital signals and hence tend to emit noises. A driver DR 30, power source PS 33, etc., are terminals for transferring comparatively heavy currents and hence tend to generate and emit a noise, if its current path includes a wiring resistance. This eliminates the disadvantages resulting from many capacitive couplings that the ball grid array package essentially has, thus avoiding generation of noises due to crosstalks.



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